CLAIMS

1. A method of estimating the signal-to-noise ratio of a wanted signal, in particular a digital signal, received by a radiocommunications receiver, characterized in that, to minimize the estimation noise of the signal-to-noise ratio, the signal and the noise are estimated separately and the signal (E_b) and the noise (N_0) are filtered (36, 44) separately before division (40) of the signal by the noise.

2. A method according to claim 1, characterized in that the filtering (36) of the wanted signal (E_b) is different from the filtering (44) of the noise signal (N_0).

Sub A1

~~3. A method according to claim 1 or claim 2,~~ characterized in that, to filter the noise signal, the statistical distribution of the noise power measurements is observed for a particular period (T) during which a statistically representative number of measurement samples is collected and which is sufficiently short for ~~the noise to remain practically stationary.~~

4. A method according to claim 3, characterized in that the noise level used has a value ($\mu_{N0} + \Delta_{N0}$) such that the probability (P) that the noise level exceeds that value is less than a predetermined threshold (ε) during the observation period (T).

Sub A2

~~5. A method according to claim 3 or claim 4,~~ characterized in that the noise value used is the maximum value over the particular period (T).

6. A method according to claim 3 or claim 4, characterized in that the moments of the distribution are ~~determined.~~

7. A method according to claim 6, characterized in that

the average (μ) and the variance (σ^2) of the distribution are determined and in that the noise value used is $\mu + n\sigma$, where σ is a standard deviation and $\underline{n}$ is a number determined according to the predetermined threshold.

Sub A3

~~8. A method according to claim 1 or claim 2,~~ characterized in that a finite or infinite impulse response low-pass filter is used to filter the noise signal.

9. A method according to any preceding claim, characterized in that a finite impulse response filter is ~~used to filter the wanted signal (E_b).~~

10. A method according to claim 9, characterized in that the finite impulse response filter is an averaging filter.

Sub A4

~~11. A method according to claim 9 or claim 10,~~ characterized in that the transmitter provides a reference signal with a regular period at a particular level and the signal-to-noise ratio is estimated from that reference signal.

12. A method according to any of claims 1 to 8, characterized in that an infinite impulse response filter ~~is used to filter the estimate of the wanted signal.~~

13. A method according to claim 12, characterized in that a first order auto-regressive filter is used, for example, as expressed by the equation:

$$\hat{x}_i = (1-a)\tilde{x}_i + a\hat{x}_{i-1}$$

where $\tilde{x}_i$ represents the instantaneous estimate of the wanted signal at time $\underline{i}$, $\hat{x}_i$ represents the smoothed estimate of the wanted signal at time $\underline{i}$ and $\underline{a}$ is an integration coefficient.

Sub A5

~~14. A method according to claim 12 or claim 13,~~ characterized in that packets or cells are received sporadically and each packet or cell received is filtered.

15. An application of the method according to any preceding claim to estimating the signal-to-noise ratio in a telecommunications receiver sending data for ~~controlling the power of a~~ corresponding transmitter.